translation

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY
(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference W01861EGT	**FOR FURTHER ACTION**	See Form PCT/IPEA/416
International application No. PCT/JP2004/009507	International filing date *(day/month/year)* 29. 06. 2004	Priority date *(day/month/year)* 02. 07. 2003
International Patent Classification (IPC) or national classification and IPC Int.Cl.[7] B22D17/00, 1/00, 2/00, 17/32		
Applicant HONDA MOTOR CO., LTD.		

1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 4 sheets, including this cover sheet.
3. This report is also accompanied by ANNEXES, comprising:
   a. ☒ *(sent to the applicant and to the International Bureau)* a total of 9 sheets, as follows:
      ☒ sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).
      ☐ sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.
   b. ☐ *(sent to the International Bureau only)* a total of (indicate type and number of electronic carrier(s)) _____, containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).
4. This report contains indications relating to the following items:
   - ☒ Box No. I Basis of the report
   - ☐ Box No. II Priority
   - ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
   - ☐ Box No. IV Lack of unity of invention
   - ☒ Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
   - ☐ Box No. VI Certain documents cited
   - ☐ Box No. VII Certain defects in the international application
   - ☐ Box No. VIII Certain observations on the international application

Date of submission of the demand 02. 02. 2005	Date of completion of this report 31. 10. 2005
Name and mailing address of the IPEA/JP JAPAN PATENT OFFICE 4-3, Kasumigaseki 3-chome Facsimile No. Chiyoda-ku, Tokyo 100-8915	Authorized officer KOYANAGI, Kengo 4E-3232 Telephone No. 03-3581-1101 EXT. 3425

Form PCT/IPEA/409 (cover sheet) (April 2005)

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INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.
PCT/JP2004/009507

Box No. I Basis of the report

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.

☒ This report is based on translations from the original language into the following language _____, which is the language of a translation furnished for the purposes of:

☐ international search (under Rules 12.3 and 23.1(b))

☐ publication of the international application (under Rule 12.4)

☐ international preliminary examination (under Rules 55.2 and/or 55.3)

2. With regard to the **elements** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:

☐ the international application as originally filed/furnished

☒ the description:

pages 1 - 34 as originally filed/furnished

pages* _____ received by this Authority on _____

pages* _____ received by this Authority on _____

☒ the claims:

pages _____ as originally filed/furnished

pages* _____ as amended (together with any statement) under Article 19

pages* 11 - 27 received by this Authority on 02. 02. 2005

pages* _____ received by this Authority on _____

☒ the drawings:

~~Figs~~ pages 2 - 37 as originally filed/furnished

~~Fig~~ pages* 1 received by this Authority on 02. 02. 2005

pages* _____ received by this Authority on _____

☐ a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing.

3. ☒ The amendments have resulted in the cancellation of:

☐ the description, pages _____

☒ the claims, Nos. 1 - 10

☐ the drawings, sheets/figs _____

☐ the sequence listing *(specify)*: _____

☐ any table(s) related to sequence listing *(specify)*: _____

4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

☐ the description, pages _____

☐ the claims, Nos. _____

☐ the drawings, sheets/figs _____

☐ the sequence listing *(specify)*: _____

☐ any table(s) related to sequence listing *(specify)*: _____

* *If item 4 applies, some or all of those sheets may be marked "superseded."*

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INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.
PCT/JP2004/009507

Box No. V **Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

1. Statement

Novelty (N)	Claims	11-27	YES
	Claims		NO
Inventive step (IS)	Claims	14, 20, 25, 27	YES
	Claims	11-13, 15-19, 21-24, 26	NO
Industrial applicability (IA)	Claims	11-27	YES
	Claims		NO

2. Citations and explanations (Rule 70.7)

Documents Cited in the International Search Report (ISR)

Document 1: JP 04-124233 A (Leotech Co., Ltd.) - 1992.04.24; claims, Page 2 upper left column, line 17 - Page 3 upper left column, line 5; Fig. 1

Document 2: JP 10-211565 A (Ube Industries, Ltd.) - 1998.08.11; claims 12 - 14; Paragraph 0051; Fig. 2

Document 3: JP 63-256257 A (Ube Industries, Ltd.) - 1988.10.24; Page 4 lower left column, line 13 - Page 4 lower right column, line 8; Fig. 3

Document Newly Cited after the International Search Report

Document 4: JP 11-197815 A (Honda Motor Co., Ltd.) - 1999.07.27; Paragraphs 0015 - 0024, 0029; Drawings

The inventions defined in Claims 11 and 17 lack inventive step over Document 1 cited in the ISR and Document 4 cited after the ISR.

Docuemnt 4 disclosed producing a slurry-form semi-solid metal by stirring and cooling a melt (molten metal) with stirring means having a cooling metal, and, after production of the semi-solid metal, carrying out a restoring treatment on the stirring means.

Docuemnt 1 discloses managing a solid phase percentage by measuring the viscosity of the semi-solid metal in the semi-solid metal production process.

Accordingly, in light of the obvious object to manage a solid phase percentage as diclosed in Docuemnt 4, a skilled artisan would have experienced no difficulty in providing the stirring means of Document 1 with a probe for measuring the viscosity of the semi-solid metal.

The inventions defined in Claims 12 and 18 lack inventive step over Document 1, Document 4 and Document 2.

Document 2 discloses a metal molded product production line comprising: a vessel capable of holding a melt; a molding machine for molding a semi-solid metal as a base material into a metal molded product; a moving apparatus for feeding the semi-solid metal inside the vessel to the molding machine; and a restoring apparatus for applying a restoring treatment to the vessel emptied.

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Supplemental Box

In case the space in any of the preceding boxes is not sufficient.
Continuation of: BOX No. V

The invention defined in Claim 13 lacks inventive step over Documents 1, 2 and 4.

In Document 1, the viscosity of the semi-solid metal is obtained by measuring a force received from the semi-solid metal; it is deemed to have been obvious to a skilled artisan to employ a probe in the form of a cantilever beam to be inserted into the semi-solid metal to thereby measure the force received from the semi-solid metal.

The inventions of Claims 15 and 16 lack inventive step over Docuemnts 1, 2 and 4.

Document 2 discloses a restoring treatment comprising the steps of blowing air to a vessel, brushing the vessel, and coating a release agent to the vessel.

The invention of Claim 19 lacks inventive step over Documents 1, 2 and 4.

Document 1 discloses preparing a map showing a correlation between the solid phase percentage and the viscosity as shown in Fig. 1 and setting, using the map, a target viscosity corresponding to a target solid phase percentage.

The invention of Claim 21 lacks inventive step over Docuemnts 1, 2 and 4,.

In metal molded product production lines, it has been commonly practiced to make temperature adjustments for, e.g., cooling in correspondence with a temperature of a melt fed to a vessel.

The inventions of Claims 22 and 23 lack inventive step over Docuemnts 1, 2, 4 and 3.

Document 3 discloses slowing down a plunger before molten metal reaches a gate and a collapsible sand core to thereby prevent collapsing of the sand core; in die-casting of semi-solid metal, it is obvious for a skilled artisan to slow down an injecting piston before a leading end of the semi-solid metal is poured into a cavity, to thereby prevent destruction of the sand core.

The invention of Claim 24 lacks inventive step over Docuemnts 1 to 4.

It is commonly practiced to die-cast a cylinder block with a water jacket by use of a collapsible sand core.

The invention of Claim 26 lacks inventive step over Docuemnts 1, 2 and 4.

Document 2 discloses a metal molded product production line comprising: a vessel capable of holding a melt; a molding machine for molding a semi-solid metal as a base material into a metal molded product; a moving apparatus for feeding the semi-solid metal inside the vessel to the molding machine; and a restoring apparatus for applying a restoring treatment to the vessel emptied. In addition, in metal molded product production lines, it is common practice to make temperature adjustments for, e.g., cooling in correspondence with a temperature of the semi-solid metal fed to the vessel.

The inventions of Claims 14, 20, 25 and 27 are not disclosed in any of the cited Documents, nor are they obvious to skilled artisans.